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ABSTRACT

The volume presents an appraisal of the empirical research in Bilingual Education. Over 180 research studies and project evaluations were reviewed and evaluated for the soundness of their research designs. Chapter I presents a discussion of the types of research conducted in bilingual education. It includes an introduction to the problems encountered in such research, and a description of the objective criteria used in selecting the research included in the volume. Chapter II presents an examination of the effects of bilingual education and bilingualism on the academic, cognitive and affective aspects of student performance -- the development of oral language skills, reading and writing ability, mathematics and social studies achievement, cognitive functioning, cultural attitudes and school attendance. In Chapter III the findings of the methodologically sound research are described, and their implications for policy-making decisions on bilingual education programs are discussed. This chapter also includes a discussion of future directions in research on bilingual education. The charts in Chapter IV illustrate the methodological weaknesses of a particular study or project evaluation which was excluded. Chapter V is a comprehensive research bibliography of studies and project evaluations included and excluded in the volume. It provides the necessary reference information required to locate the original research source. (Author/NQ)

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BILINGUAL EDUCATION:

an appraisal of empirical research

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BILINGUAL EDUCATION:

AN APPRAISAL OF EMPIRICAL RESEARCH

LARAINE TESTA ZAPPERT

B. ROBERTO CRUZ

1977

BAY AREA BILINGUAL EDUCATION LEAGUE
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To all children, that they may receive a quality education regardless of their linguistic or cultural background.

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TABLE OF CONTENTS

ACKNOWLEDGEMENTS ii

FOREWORD iii

INTRODUCTION 1

CHAPTER

1. RESEARCH IN BILINGUAL EDUCATION 2

    CRITERIA FOR SELECTING RESEARCH 4

2. EFFECTS OF BILINGUAL EDUCATION: WHAT THE RESEARCH SHOWS 7

    ORAL LANGUAGE DEVELOPMENT 9

    READING AND WRITING SKILLS 12

    SOCIAL STUDIES ACHIEVEMENT 21

    MATHEMATICS ACHIEVEMENT 22

    COGNITIVE FUNCTIONING 27

    ATTITUDE TOWARD SELF 31

    SCHOOL ATTENDANCE 32

    BEING BILINGUAL AND ORAL LANGUAGE 33

    BEING BILINGUAL AND READING AND WRITING 34

    BEING BILINGUAL AND COGNITIVE DEVELOPMENT 35

    BEING BILINGUAL AND SELF ATTITUDE 38

3. RESULTS AND CONCLUSIONS 39

4. CRITERIA FOR EXCLUSION OF RESEARCH 41

    RESEARCH STUDIES 42

    PROJECT EVALUATIONS 51

5. BIBLIOGRAPHY 69

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Any error of omission or commission is solely the responsibility of the authors.

FOREWORD

Congress, in 1967, added an amendment to the then existing educational legislation, the Elementary and Secondary Education Act (ESEA), which brought about the enactment of the ESEA Title VII Bilingual Education Act. This marked the first time in the then one-hundred and ninety-one year history of this country that Congress had addressed the question of language minorities in the United States. It was not until seven years later, January 21, 1974, that the United States Supreme Court agreed to hear a language case based on denial of equal access to education, the *Lau v. Nichols case*. In a landmark decision, the court found in favor of the plaintiff, ruling that:

> ". . . there is no equality of treatment merely by providing students with the same facilities, textbooks, teachers, and curriculum; for students who do not understand English are effectively foreclosed from any meaningful education."
>
> LAU V. NICHOLS
> 414 U.S. 563,566

Since 1967, there has been much controversy regarding the effects of Bilingual Education on limited- and non-English-speaking students, as well as, on fluent English-speaking children. Much of the controversy stems from ethno-centric opinions that "if one is in America he should speak English only and give up his language and culture" to the other extreme that "Bilingual Education works because children in bilingual classrooms have smiling faces and are happy." Both of these attitudes are based on "gut level" reactions, and provide little in the way of empirical data for policy-makers to base their decisions. Additionally, proponents of each of the two extreme views continue to attack each other with negative comments in the mass media. It is not uncommon to find in major newspapers, from the Washington Post to the San Francisco Chronicle, headlines that read: "The Bilingual Battle: Should Washington Finance Ethnic Identities," "Bilingual Danger," "Bilingual Education: An Education Solution for Language Minorities,"

"Bilingual Education and Equal Educational Opportunity," and many, many other articles. The problem with most of these articles is that their content depends on which of the two opposing views is being entertained. Both proponents and opponents of Bilingual Education tend to misuse statistics to their own advantage. Too often opponents of Bilingual Education cite that there is no sound, empirical data from this country to substantiate whether Bilingual Education works or not. Moreover, they conclude that because of this, Bilingual Education is "ripping off" the taxpayer and should be discontinued. Finally, opponents cite any negative "research" findings that have been published, e.g., the American Institute for Research (AIR) Impact 1977 Study.

On the other hand, proponents of Bilingual Education tend to use findings from evaluations of bilingual programs of questionable research methodology and design, and thus their advocacy for Bilingual Education is compromised.

The work in this volume is an appraisal of the empirical research in Bilingual Education that has been conducted in this country and abroad.

Each of the studies was put through the "acid" test for the soundness of their research design. Those studies that survived a rigorous examination of their design and statistical methodology are included in this book. Conversely, those studies which were weak in methodological design and could not be considered valid empirical research are listed in the volume with the reasons for their exclusion. Although over 180 research studies and evaluation reports were assessed before this publication was completed, a large number of recent studies on Bilingual Education was not available at the time we went to print. Many sound studies might have been left out of this volume. In our follow-up edition we hope to include these studies.

Contrary to popular opinion, our own investigations have shown that the allegation that there is no research in this country to verify the efficacy of Bilingual Education is patently false. Nine out of the twelve (75%) studies which were found to meet the standards of sound empirical research were conducted in the United States. The findings of these are included in the volume. A further finding of this investigation is that Bilingual Education project evaluations are not adequately measuring the impact of these programs on the target population. Too often, Bilingual Education programs which are doing an excellent job of motivating limited- and non-English-speaking students, involving parents, and succeeding in improving the academic achievements of students are not adequately assessed because of a poor evaluation or research designs, e.g., not controlling for socioeconomic status in control-experimental group design, inadequate sample size, no baseline or comparison data, etc., all factors which obscure the significant positive effect of these programs.

The purpose of this publication is to present the reader with an objective appraisal of research findings in Bilingual Education. In doing so, it is hoped that the reader will be spared the unsubstantiated claims of proponents and critics alike, and may base his/her conclusions on the weight of objective facts alone.

Dr. B. Roberto Cruz
Executive Director
BABEL CENTER

As a special request we ask that readers of this volume submit: 1) their comments regarding any material in this book; and, 2) relevant studies on bilingual education that should be considered in the update of this volume.

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INTRODUCTION

When bilingual education is offered as an educational program, many people who are concerned about the quality of education ask: "Does it work?" This volume represents a major effort to objectively answer that question. The research presented is the result of a comprehensive search and review of the existing literature in bilingual education and bilingualism.

Over 180 research studies and project evaluations were carefully reviewed and evaluated for the soundness of their research designs. The studies which survived the rigorous and objective selection process are presented in response to the questions most commonly asked about the effect of bilingual education and bilingualism on student performance.

This volume is designed to serve as an introduction to the field of bilingual education, and a comprehensive, critical analysis of research in this area.

Chapter I presents a discussion of the types of research conducted in bilingual education. It includes an introduction to the problems encountered in such research, and a description of the objective criteria used in selecting the research included in this volume.

Chapter II presents a series of important questions and answers on the effects of bilingual education on the academic, cognitive and affective aspects of student performance. Included in this chapter is an examination of the effects of bilingual education and bilingualism on such areas as: the development of oral language skills, reading and writing ability, mathematics and social studies achievement, cognitive functioning, cultural attitudes and school attendance. The research is presented in a detailed, non-technical manner to provide the reader with the basic background for interpreting and understanding the findings.

In Chapter III the findings of the methodologically sound research are described, and their implications for policy-making decisions on bilingual education programs are discussed. This chapter also includes a discussion of future directions in research on bilingual education.

The charts in Chapter IV are designed to provide a graphic reference for determining the methodological weaknesses of a particular research study or project evaluation. They also indicate other reasons for excluding certain research and project evaluations from this volume.

Chapter V is a comprehensive research bibliography. It provides the necessary reference information to enable the interested reader to locate the original research source.

CHAPTER I

RESEARCH IN BILINGUAL EDUCATION

CHAPTER I

RESEARCH IN BILINGUAL EDUCATION

Since their inception, bilingual education programs have been the center of controversy. One of the principal concerns of persons involved in this area, as educators, administrators, students, parents, legislators, or taxpayers, is: How effective are bilingual education programs in achieving their stated goals? Do bilingual education programs help non-English-speaking and limited-English-speaking students progress effectively through the educational system? Do these programs aid such students in achieving competence in the English language? Is being bilingual, by learning or maintaining two languages, a desirable educational goal? All of these questions are of great concern to persons involved in the area of education and policy making.

One way of answering such questions is to examine the research in the area of bilingual education and student performance. Unfortunately, persons attempting to do so are often confronted with a plethora of contradictory findings. Even research conducted on the same group of students may produce conflicting results. So confused is the apparent state of the art, that many persons have concluded that the effects of bilingual education and bilingualism on student performance are, at best, unknown.

One of the principal factors contributing to this confusion is the way in which research findings are presented in the literature. Research reviews in bilingual education generally take one of three perspectives:

1. Historical perspective—research is reviewed in chronological order from the earliest works to the present.
2. Geographical perspective—research is classified by geographical area, i.e., research conducted in the U.S., research conducted in the Philippines, etc.
3. Treatment perspective—research is grouped according to the type of treatment program being studied, i.e., bilingual, immersion, etc.

While these may not be inappropriate ways of organizing research findings, one important consideration has been conspicuously absent from the research reviews to date: a systematic assessment of the quality and applica-

bility of the research to a discussion of the effects of bilingual education on student performance. Various research reviews (Engle, 1975; Darcy, 1963) give reasons why certain research projects might be discounted from serious discussions of this topic, but frequently these reasons are not clearly articulated, and most often they are entirely overlooked. Clearly any attempt to compare research studies of highly varying quality could only lead to confusion and contradiction.

In conducting the research for the present volume, an attempt was made to systematically assess the quality and applicability of the research reviewed. To this end, six objective criteria were established to evalute the methodological soundness of the research under consideration. It was felt that those studies which survived a rigorous assessment of their research design could best answer the question, "Does bilingual education work?"

Criteria For Excluding Research From This Volume

Research was considered inappropriate for discussions of the effectiveness of bilingual education on student performance if it demonstrated one or more of the following methodological weaknesses:

1. NO CONTROL FOR SOCIOECONOMIC STATUS

In many research studies, students were compared without concern for disparities in their social and economic background. Frequently the performance of middle class monolingual children was compared with the performance of lower class bilingual children, to the obvious disadvantage of the lower class bilingual child. In many instances when the experimenter controlled for socioeconomic differences ex-post-facto, reported disparities in the performance of bilingual and monolingual students were shown to be non-existent.

Failure to control for socioeconomic status was the most common methodological failing of the research on bilingualism and bilingual education conducted prior to 1968.

2. INADEQUATE SAMPLE SIZE/IMPROPER SAMPLING TECHNIQUES/ EXCESSIVE ATTRITION RATE

Any research study with a sample size of less than thirty students was considered inadequate. An inadequate sample made generalization to a larger population impossible. In some research studies and project evaluations, non-random selection of a sample population invalidated the findings presented. Often biased, "anecdotal" information was invalidly presented as representative of student performance.

In addition, in some studies the number of students remaining in the posttest sample was less than 10% of the original sample. In such instances, the attrition rate was considered excessively high, and the research project was excluded from consideration.

3. NO BASELINE OR COMPARISON DATA/NO CONTROL GROUP/NON-RELEVANT COMPARISONS

Most often project evaluations attempted to demonstrate program effectiveness through statistical analysis of gain scores. Student performance on a posttest was compared to performance on a pretest, and a t-test was used to determine the statistical significance of the observed gain. However, without a comparison or control group, or in the absence of some baseline measure of student gains prior to inception of the program, such statistical analyses are meaningless to discussions of program effectiveness. In such cases,

the observed significant gains in student performance could be attributed to a variety of factors including maturation, incidental learning, a practice effect, etc.

The fact that a particular program has had a significant positive effect on student performance can only be demonstrated if:

a. the experimental group performed significantly better than a comparison group.

b. the pre-post gains during the treatment period were significantly greater than the gains before the treatment.

c. the results of comparison to district or national norms were significantly better after the treatment than before the treatment.

Project evaluations and research studies which did not include control groups, baseline or comparative data were excluded from consideration in this research.

In addition, research and project evaluations which made comparisons between different ethnic groups of limited English-speaking students enrolled in bilingual programs, without reference to comparable groups not enrolled in such programs, were excluded from consideration.

4. NO CONTROL FOR INITIAL LANGUAGE DOMINANCE

In many research and project evaluations, ethnic identity was equated with the language dominance of an individual student. Thus, Spanish-surnamed children were inaccurately assumed to be Spanish speaking, Chinese-surnamed students, Chinese speaking, etc. No attempt was made to ascertain the degree to which the child of a particular ethnic background was actually fluent in the language of that ethnic group.

In other instances, an individual student's language ability was assessed by a teacher, often a monolingual teacher unfamiliar with the other language being assessed. Such teacher assessments have been shown to be highly unreliable means of determining language dominance. If no test of the student's initial language dominance was employed, the research was excluded from this volume

5. SIGNIFICANT DIFFERENCES IN TEACHER QUALIFICATIONS OR CHARACTERISTICS/OTHER CONFOUNDING VARIABLES

In some research studies, a group of teachers were shown to have significantly better training, education and experience than teachers of a comparison group. In other instances, certain programs had clearly superior teaching materials, classroom facilities, etc., than did the comparison program. In such cases, the effect of the

differences in teacher qualifications, teaching materials, etc., could seriously bias the outcome of the programs being compared. Any research or project evaluations where such differences were evident were excluded from this volume.

6. INSUFFICIENT STATISTICAL INFORMATION/IMPROPER STATISTICAL APPLICATIONS

Frequently, project evaluations did not provide sufficient statistical information from which valid conclusions as to program effectiveness could be drawn. In the absence of such information, the project evaluation had to be eliminated from consideration.

In some research and project evaluations, improper experimental designs were employed, or statistical procedures were improperly applied. In some instances experimental designs were employed which called for the random assignment of students to treatment groups when, in fact, the students being studied were not randomly assigned to the treatment conditions. In other instances, analysis of covariance was misused. Theoretically, this technique adjusts for initial differences in the treatment and comparision groups. If these initial differences are large, however, analysis of covariance is ineffective in controlling for the differences involved. Those research and project evaluations which demonstrated these types of statistical weaknesses were excluded from this volume.

In addition to the six criteria aforementioned, research and project evaluations were excluded from this volume for four additional reasons:

1. Research which investigated the effects of bilingualism and bilingual eduction on students whose first language and culture are *not* in jeopardy (for example, Anglophones in Canada, Anglo-Americans in the U.S., or Whites in South Africa).
2. Research which does not deal directly with the effects of bilingualism or bilingual education (for example, studies on the effects of testing in the student's first or second language).
3. Research reports which reviewed the literature, but in which no new empirical data was presented.
4. Research reports which were not available through major library sources, and those publications which did not arrive in time for review.

In the next chapter, the empirical research which met the objective criteria for methodological soundness is presented.

CHAPTER II

EFFECTS OF BILINGUAL EDUCATION: WHAT THE RESEARCH SHOWS

CHAPTER II

EFFECTS OF BILINGUAL EDUCATION: WHAT THE RESEARCH SHOWS

In this chapter important questions about the effects of bilingual education and bilingualism on student performance are answered. A brief summary of the valid research studies and project evaluations is presented in answer to each of the questions asked. The summary includes a description of the student population studied, the instrument used to assess student performance, the treatment comparisons made, and the findings for each grade level studied. The first section deals with the effects of bilingual education on student performance.

In creating these summaries, two types of bilingual education programs were considered: (1) Those programs in which instruction is intitially begun in the child's native language with a second language being introduced at a later time. (2) Those programs in which instruction is begun in both the child's native language and a second language simultaneously. The reader can distinguish between the two types of programs by examining the description of the experimental treatment.

The dependent variables, i.e., oral language skills, reading and writing ability, etc., included are those found in the research literature. Findings referring to several different aspects of the same general variable were collapsed where applicable. The effects on student performance measured in both the native language and in a second language are presented where relevant research is available in the literature.

The following symbols were used to illustrate the research findings:

+ Significant Positive Effect. Interpreted as: a) the experimental group performed significantly better than a comparison group; b) pre-test gains during treatment period were significantly greater than gains before treatment; or c) results of comparison to district or national norms were significantly better after treatment than before treatment.

± No Significant Differences.* No significant differences found in one of conditions a), b), or c) above.

– Significant Negative Effect. Subjects performed significantly worse in one of conditions a), b), or c) above.

*NOTE: No significant difference should not be interpreted as a negative finding for bilingual education. Rather, while there was no siginificant difference between the experimental (bilingual education) and the control (monolingual only) groups on student performance, the students in bilingual classrooms did not score lower than similar students receiving English instruction only; nor did students in bilingual education classrooms regress in their learning of academic subjects in English. When one adds the fact that students in bilingual education classrooms learn two languages, their native language and a second language, one can conclude that a statistically non-significant finding demonstrates the positive advantages of bilingual education.

EFFECT OF BILINGUAL EDUCATION ON ORAL LANGUAGE DEVELOPMENT

QUESTION:

HOW DOES BILINGUAL EDUCATION AFFECT ORAL LANGUAGE DEVELOPMENT?

ANSWER:

A. Effect on Oral Language Development in the Child's Native Language:*

1. A. Cohen, 1972

Population: 90 Spanish dominant children in Redwood City, California

Instrument: Experimental Test of Spanish Oral Comprehension

Results:

Grade Level		Treatment: Experimental Spanish/English	Treatment: Control English Only
2		±	±

+ = Performed significantly better.
± = No significant differences between the two groups.
− = Performed significantly worse.

* Note: Throughout this volume, the term "Child's Native Language" refers to the child's first-learned, dominant and/or home language.

BILINGUAL EDUCATION AND ORAL LANGUAGE DEVELOPMENT

Continued

B. Effect on Oral Language Development in a Second Language

1. T. Taylor, 1969

Population: 161 Spanish dominant children in San Antonio, Texas

Instrument: Phonology, Intonation and Fluency Tests (English)

Results:

Grade Level	Treatment: Experimental Spanish/English	Treatment: Control English Only
4	±	±
5	±	±

+ = Performed significantly better.
± = No significant differences between the two groups.
− = Performed significantly worse.

BILINGUAL EDUCATION AND ORAL LANGUAGE DEVELOPMENT

Continued

2. A. Cohen, 1972

Population: 90 Spanish dominant children in Redwood City, California

Instrument: Experimental Test of English Oral Comprehension

Results:

Grade Level		Treatment: Experimental Spanish/English	Treatment: Control English Only
2		±	±

+ = Performed significantly better.
± = No significant differences between the two groups.
− = Performed significantly worse.

EFFECT OF BILINGUAL EDUCATION ON READING AND WRITING SKILLS

QUESTION:

HOW DOES BILINGUAL EDUCATION AFFECT READING AND WRITING SKILLS?

ANSWER:

A. Effect on Reading and Writing Skills in the Child's Native Language

1. Alice, Texas Demonstration Project, 1973 - 1974

Population: 397 Spanish dominant children in Alice, Texas

Instrument: Inter American Series - Prueba de Lectura (Spanish)

Results:

Grade Level	Treatment: Experimental Spanish/English	Treatment: Control English Only
1	+	−
2	±	±
3	+	−
4	+	−

+ = Performed significantly better.
± = No significant differences between the two groups.
− = Performed significantly worse.

BILINGUAL EDUCATION AND READING AND WRITING SKILLS

Continued

2. Corpus Christi Demonstration Project, 1973 - 1974

Population: 519 Spanish dominant children in Corpus Christi, Texas

Instrument: Inter American Series - Prueba de Lectura (Spanish)

Results:

Grade Level	Treatment: Experimental Spanish/English	Treatment: Control English Only
1	+	–
2	+	–
3	+	–

+ = Performed significantly better.
± = No significant differences between the two groups.
– = Performed significantly worse.

BILINGUAL EDUCATION AND READING AND WRITING SKILLS

Continued

3. A. Cohen, 1972

Population: 90 Spanish dominant children in Redwood City, California

Instrument: Inter American Series - Prueba de Lectura (Spanish)

Results:

Grade Level	Treatment: Experimental Spanish/English	Treatment: Control English Only
2	±	±

+ = Performed significantly better.
± = No significant differences between the two groups.
− = Performed significantly worse.

BILINGUAL EDUCATION AND READING AND WRITING SKILLS

Continued

B. Effect on Reading and Writing Skills in a Second Language

1. Alice, Texas Demonstration Project, 1973 - 1974

Population: 397 Spanish dominant children in Alice, Texas

Instrument: Inter American Series - English Reading Test

Results:

Grade Level	Treatment: Experimental Spanish/English	Treatment: Control English Only
1	+	−
2	±	±
3	+	−
4	+	−

+ = Performed significantly better.
± = No significant differences between the two groups.
− = Performed significantly worse.

BILINGUAL EDUCATION AND READING AND WRITING SKILLS

Continued

2. M. Ramos, et al, 1967

Population: 377 Hiligaynon dominant children in Iloilo, Philippines

Instrument: Test of English reading

Results:

Grade Level	Treatment: Experimental Hiligaynon/English (Gr. 1-3) (Gr. 4-6)	Treatment: Control English Only
4	–	+
6	±	±

+ = Performed significantly better.
± = No significant differences between the two groups.
– = Performed significantly worse.

BILINGUAL EDUCATION AND READING AND WRITING SKILLS

Continued

3. N. Modiano, 1968

Population: 1600 Indian vernacular dominant children in Chiapas, Mexico

Instrument: Spanish Language Reading Test

Results:

Grade Level		Treatment: Experimental Indian Vernacular	Treatment: Control Spanish Only
1		+	−

+ = Performed significantly better.
± = No significant differences between the two groups.
− = Performed significantly worse.

BILINGUAL EDUCATION AND READING AND WRITING SKILLS

Continued

4. Corpus Christi Demonstration Project, 1973 - 1974

Population: 519 Spanish dominant children in Corpus Christi, Texas

Instrument: Inter American Series - English Reading Test

Results:

Grade Level		Treatment	
		Experimental Spanish/English	Control English Only
1		+	−
2		±	±
3		+	−

+ = Performed significantly better.
± = No significant differences between the two groups.
− = Performed significantly worse.

BILINGUAL EDUCATION AND READING AND WRITING SKILLS
Continued

5. K. Balasubramonian, 1973

Population: 213 Spanish dominant children in Illinois

Instrument: Test of English Language Achievement

Results:

Grade Level		Treatment: Experimental Spanish/English + ESL	Treatment: Control English Only + ESL
K		±	±
2		±	±
3		±	±

\+ = Performed significantly better.
± = No significant differences between the two groups.
− = Performed significantly worse.

BILINGUAL EDUCATION AND READING AND WRITING SKILLS

Continued

6. A. Cohen, 1972

Population: 90 Spanish dominant children in Redwood City, California

Instrument: CPT Reading Test
Inter American Series - English Reading Test

Results:

Grade Level	Treatment	
	Experimental Spanish/English	Control English Only
2	±	±

+ = Performed significantly better.
± = No significant differences between the two groups.
− = Performed significantly worse.

EFFECT OF BILINGUAL EDUCATION ON SOCIAL STUDIES ACHIEVEMENT

QUESTION:

HOW DOES BILINGUAL EDUCATION AFFECT SOCIAL STUDIES ACHIEVEMENT?

ANSWER:

A. Effect on Social Studies Achievement Measured in a Second Language

1. M. Ramos, 1967

Population: 37 Hiligaynon dominant children in Iloilo, Philippines

Instrument: Test of Social Studies Achievement administered in English

Results:

Grade Level		Treatment: Experimental Hiligaynon/English (Gr. 1-3) (Gr. 4-6)	Treatment: Control English Only
4		±	±
6		+	−

\+ = Performed significantly better.
± = No significant differences between the two groups.
− = Performed significantly worse.

EFFECT OF BILINGUAL EDUCATION ON MATHEMATICS ACHIEVEMENT

QUESTION:

HOW DOES BILINGUAL EDUCATION AFFECT MATHEMATICS ACHIEVEMENT?

ANSWER:

1. M. Ramos, 1967

Population: 377 Hiligaynon dominant children in Iloilo, Philippines

Instrument: Mathematics test administered in English

Results:

Grade Level	Treatment: Experimental Hiligaynon/English (Gr. 1-3) (Gr. 4-6)	Treatment: Control English Only
4	±	±
6	±	±

+ = Performed significantly better.
± = No significant differences between the two groups.
− = Performed significantly worse.

BILINGUAL EDUCATION AND MATHEMATICS ACHIEVEMENT

Continued

2. Houston, Texas Demonstration Project, 1972 - 1973

Population: 822 Spanish dominant children in Houston, Texas

Instrument: Inter American Series - Mathematics test administered in English

Results:

Grade Level		Treatment	
		Experimental Spanish/English	Control English Only
1		+	–
2		+	–
3		+	–
4		+	–

+ = Performed significantly better.
± = No significant differences between the two groups.
– = Performed significantly worse.

BILINGUAL EDUCATION AND MATHEMATICS ACHIEVEMENT

Continued

3. Corpus Christi Demonstration Project, 1973 - 1974

Population: 519 Spanish dominant children in Corpus Christi, Texas

Instrument: Inter American Series - Mathematics Test administered in English

Results:

Grade Level		Treatment: Experimental Spanish/English	Treatment: Control English Only
1		+	−
2		±	±
3		±	±

+ = Performed significantly better.
± = No significant differences between the two groups.
− = Performed significantly worse.

BILINGUAL EDUCATION AND MATHEMATICS ACHIEVEMENT

Continued

4. B. Trevino, 1968

Population: 92 Spanish dominant children in Webb County, Texas

Instrument: California Achievement Test - Mathematics

Results:

Grade Level		Treatment: Experimental Spanish/English	Treatment: Control English Only
1		+	−
3		+	−

+ = Performed significantly better.
± = No significant differences between the two groups.
− = Performed significantly worse.

BILINGUAL EDUCATION AND MATHEMATICS ACHIEVEMENT

Continued

5. A. Cohen, 1972

Population: 90 Spanish dominant children in Redwood City, California

Instrument: Cooperative Primary Math Test

Results:

Grade Level		Treatment: Experimental Spanish/English	Treatment: Control English Only
2		+	−

+ = Performed significantly better.
± = No significant differences between the two groups.
− = Performed significantly worse.

EFFECT OF BILINGUAL EDUCATION ON COGNITIVE FUNCTIONING

QUESTION:

HOW DOES BILINGUAL EDUCATION AFFECT COGNITIVE FUNCTIONING?

ANSWER:

A. Effect on Cognitive Functioning Measured Non-Verbally

1. A. Cohen, 1972

Population: 90 Spanish dominant children in Redwood City, California

Instrument: Inter American Series - Non-Verbal Abilities Subtest

Results:

Grade Level	Treatment: Experimental Spanish/English	Treatment: Control English Only
2	+	−

+ = Performed significantly better.
± = No significant differences between the two groups.
− = Performed significantly worse.

BILINGUAL EDUCATION AND COGNITIVE FUNCTIONING

Continued

B. Effect on Cognitive Functioning Measured in Native Language

1. Alice, Texas Demonstration Project, 1973 - 1974

Population: 397 Spanish dominant children in Alice, Texas

Instrument: Inter American Series - Habilidades Generales - Administered in Spanish

Results:

Grade Level		Treatment: Experimental Spanish/English	Treatment: Control English Only
K		+	–
1		+	–
2		±	±
3		±	±
4		+	–

+ = Performed significantly better.
± = No significant differences between the two groups.
– = Performed significantly worse.

BILINGUAL EDUCATION AND COGNITIVE FUNCTIONING

Continued

C. Effect on Cognitive Functioning Measured in Second Language

1. Alice, Texas Demonstration Project, 1973 - 1974

Population: 397 Spanish dominant children in Alice, Texas

Instrument: Inter American Series - General Abilities - Administered in English

Results:

Grade Level	Treatment	
	Experimental Spanish/English	Control English Only
K	±	±
1	+	−
2	±	±
3	±	±
4	±	±

+ = Performed significantly better.
± = No significant differences between the two groups.
− = Performed significantly worse.

BILINGUAL EDUCATION AND COGNITIVE FUNCTIONING

Continued

2. Houston, Texas Demonstration Project, 1972 - 1973

Population: 822 Spanish dominant children in Houston, Texas

Instrument: Inter American Series - General Abilities - Administered in English

Results:

Grade Level		Treatment: Experimental Spanish/English	Treatment: Control English Only
K		+	–
1		+	–
2		+	–
3		+	–
4		+	–

+ = Performed significantly better.
± = No significant differences between the two groups.
– = Performed significantly worse.

EFFECT OF BILINGUAL EDUCATION ON ATTITUDES TOWARD SELF AND OWN CULTURE

QUESTION:

HOW DOES BILINGUAL EDUCATION AFFECT A CHILD'S SELF ATTITUDE AND ATTITUDES TOWARD HIS/HER OWN CULTURE?

ANSWER:

1. A. Cohen, 1972

Population: 90 Spanish dominant children in Redwood City, California

Instrument: Cross Cultural Attitude Inventory

Results:

Grade Level		Treatment	
		Experimental Spanish/English	Control English Only
2		±	±

+ = Performed significantly better.
± = No significant differences between the two groups.
− = Performed significantly worse.

EFFECT OF BILINGUAL EDUCATION ON SCHOOL ATTENDANCE

QUESTION:

HOW DOES BILINGUAL EDUCATION AFFECT SCHOOL ATTENDANCE?

ANSWER:

1. A. Cohen, 1972

Population: 90 Spanish dominant children in Redwood City, California

Instrument: School Attendance Records

Results:

Grade Level		Treatment: Experimental Spanish/English	Treatment: Control English Only
2		+	−

+ = Performed significantly better.
± = No significant differences between the two groups.
− = Performed significantly worse.

EFFECT OF BILINGUALISM ON ORAL LANGUAGE SKILLS

QUESTION:

HOW DOES BEING BILINGUAL AFFECT A CHILD'S ORAL LANGUAGE DEVELOPMENT?

ANSWER:

1. None of the Research Which Met the Established Criteria Addressed This Question.

EFFECT OF BILINGUALISM ON READING AND WRITING ABILITY

QUESTION:

HOW DOES BEING BILINGUAL AFFECT A CHILD'S READING AND WRITING SKILLS?

ANSWER:

A. Effect on Reading and Writing Skills in a Second Language

1. H. Lewis and E. Lewis, 1965

Population: 212 sixth grade students: 114 monolinguals and 98 bilinguals in California

Instrument: Student compositions analyzed for written language skills

Results:

Grade Level		Treatment: Bilingual Chinese/English	Treatment: Monolingual English Only
6		±	±

+ = Performed significantly better.
± = No significant differences between the two groups.
− = Performed significantly worse.

EFFECT OF BILINGUALISM ON COGNITIVE FUNCTIONING

QUESTION:

HOW DOES BEING BILINGUAL AFFECT A CHILD'S COGNITIVE FUNCTIONING?

ANSWER:

A. Cognitive Functioning Measured Non-Verbally

1. E. Peal and W. Lambert, 1962

Population: 164 students: 75 monolinguals and 89 bilinguals in Montreal, Canada

Instrument: Raven Progressive Matrics Test

Results:

Age		Linguistic Group: Bilingual French/English	Linguistic Group: Monolingual French Only
10 yrs.		+	−

+ = Performed significantly better.
± = No significant differences between the two groups.
− = Performed significantly worse.

BILINGUALISM AND COGNITIVE FUNCTIONING - Continued

B. Cognitive Functioning Measured in Native Language

1. E. Peal and W. Lambert, 1962

Population: 164 students: 75 monolinguals and 89 bilinguals in Montreal, Canada

Instrument: Lavoie - Laurendeau Group Test of General Intelligence

Results:

Age		Linguistic Group: Bilingual French/English	Linguistic Group: Monolingual French Only
10 yrs.		+	−

+ = Performed significantly better.
± = No significant differences between the two groups.
− = Performed significantly worse.

BILINGUALISM AND COGNITIVE FUNCTIONING - Continued

C. Cognitive Functioning Measured in Second Language

1. C. Feldman and M. Shen, 1971

Population: 30 Head Start children: 15 bilingual and 15 monolingual

Instrument: 3 cognitive functioning tests

Results:

Grade Level		Linguistic Group: Bilingual Spanish/English	Linguistic Group: Monolingual Spanish Only
Head Start		+	–

+ = Performed significantly better.
± = No significant differences between the two groups.
– = Performed significantly worse

EFFECT OF BILINGUALISM ON ATTITUDES TOWARD SELF AND OWN CULTURE

QUESTION:

HOW DOES BEING BILINGUAL AFFECT A CHILD'S SELF ATTITUDE AND ATTITUDE TOWARD HIS/HER OWN CULTURE?

ANSWER:

1. E. Peal and W. Lambert, 1962

Population: 164 students: 75 monolinguals and 89 bilinguals in Montreal, Canada

Instrument: Evaluation of self and culture

Results:

Age		Linguistic Group: Bilingual English/French	Linguistic Group: Monolingual French Only
10 yrs.		±	±

\+ = Performed significantly better.
± = No significant differences between the two groups.
− = Performed significantly worse.

CHAPTER III

RESULTS AND CONCLUSIONS

CHAPTER III

RESULTS AND CONCLUSIONS

Results

After applying the six criteria described in Chapter I to 108 project evaluations and 76 research studies, 105 project evaluations and 67 research studies were *rejected* due to one or more serious methodological weaknesses. A comprehensive list of all the research studies and project evaluations reviewed, with the reasons for exclusion from this volume, is presented in Chapter IV.

With the elimination of the poorly designed and executed research studies and project evaluations, the effect of bilingual education and bilingualism on student performance becomes readily apparent. If one applies objective criteria for applicability and soundness of research design, most of the studies which remain show a significant positive effect, or a non-significant effect on student performance. Of the 66 findings reported here, only one (1%) was negative, 38 (58%) were positive, and 27 (41%) were neutral.

As mentioned earlier, a non-significant effect is not a negative finding with respect to bilingual education. A non-significant effect, that students in bilingual education classes are learning at the same rate as students in monolingual classes, demonstrates the fact that learning in two languages does not interfere with a student's academic and cognitive performance. Students in bilingual classrooms have the added advantage of learning a second language and culture without impeding their educational progress. Under these circumstances, a non-significant finding can be interpreted as a positive effect of bilingual education.

Thus, the research demonstrates that bilingual education and bilingualism improves, or does not impede, oral language development, reading and writing abilities, mathematics and social studies achievement, cognitive functioning, and self image. In addition, there is empirical evidence that bilingual education programs improve school attendance.

Conclusions

Contrary to widespread belief, the research conducted to date is not contradictory with regards to the effects of bilingualism and bilingual education on student performance. The research reviewed in this volume strongly supports the use of the child's native language* as a medium of instruction in U.S. schools.

Clearly the research findings presented here represent an initial step towards understanding the complex issues surrounding the area of bilingual education and student performance. It is important to have eliminated some of the confusion and contradiction in this area, and to have shown that well executed research supports the positive effects of bilingual education.

There is, however, much work to be done in this area. The fact that so much of the research conducted had to be eliminated for methodological weaknesses points out the necessity of improving the quality of research in this area. It is conceivable that the results of some highly effective bilingual education programs were obscured by poorly designed and/or executed project evaluations. Without rigorous, uniform application of objective evaluation criteria, the quality of research in bilingual education is unlikely to be improved. Such improvements are of critical importance, as the effectiveness of bilingual programs can be adequately assessed only through methodologically sound research.

In addition, the adoption of a longitudinal, multivariate approach to studying the effects of bilingual education on student performance is long overdue. Following the performance of groups of students, both experimentals and controls, over a period of time, would enable us to determine the long-range effects of various treatment programs. A multivariate analysis of the factors involved in the success or failure of particular programs would improve our capabilities for determining the relative importance of such factors on student performance. Too often, bilingual education programs are viewed as undifferentiated wholes, when in fact, actual aspects of the program, i.e., expenditure of funds, teacher performance, language usage, etc., are highly variable. Multivariate analyses would assist in determining which program components are most effective in improving student performance.

The implementation of these approaches would greatly improve our ability to predict the outcome of bilingual education programs, and assess their cost effectiveness. Such information is clearly essential to making informed decisions on educational programs for students of non-English speaking backgrounds.

* Throughout this volume, the term "child's native language" refers to the child's first-learned, dominant and/or home language.

CHAPTER IV

CRITERIA FOR EXLUSION OF RESEARCH

CHAPTER IV

CRITERIA FOR EXCLUSION OF RESEARCH

The charts presented in this chapter illustrate the criteria for excluding individual research studies and project evaluations from this volume. The research studies are presented in Section 1 and the project evaluations in Section 2. In the lefthand column is a list of the research studies and project evaluations reviewed. Across the top, the criteria for exclusion are enumerated. A detailed description of each of these criteria is presented in Chapter 1.

In the review of project evaluations, considerable use was made of the final report on The Identification and Description of Exemplary Bilingual Education Programs (1975), prepared by the American Institutes for Research under contract with the U.S. Office of Education, and on the subsequent selections made by the Dissemination Review Panel (DRP) of the Education Division of the Department of Health, Education and Welfare.

Projects disqualified for methodological weakenesses by AIR Reviewers are, of necessity, grouped under one criteria. The AIR report did not specify the particular methodological weakenss of individual projects.

SECTION 1

RESEARCH EXCLUDED

REVIEW OF RESEARCH STUDIES
REASONS FOR EXCLUSION FROM THIS VOLUME

AUTHOR	No Control for Socioeconomic Status	Inadequate Sample Size/Improper Sampling Techniques/Excessive Attrition Rate	No Baseline or Comparison Data/ No Control Group/ Non-Relevant Comparison	No Control for Initial Language Dominance	Significant Differences in Teacher Qualifications	Insufficient Statistical Information/ Improper Statistical Application	Research Review/ No Data Presented	Non-Target Population	Unavailable for Review
AIR Impact Study, 1977			X	X	X				
Albright, V. H., 1974								X	
Altus, G., 1953	X								
Alvarez, J. M., 1975								X	
Anastasi, A. and Cordova, P., 1953	X								
Anastasi, A. and Jesus, C., 1953	X								
Anderson, T. and Boyer, M., 1970						X			
Anderson, W. C., 1974							X		
Barclay, L. F. K., 1969					X				
Barik, II, C., and Swain, M., 1974							X		
Barik, II, C. and Swain, M., 1975							X		
Barik, II, C., and Swain, M., 1976							X		
Bates, E., 1970			X						
Ben-Zeev, S., 1972								X	
Bolger, P., 1967			X						
Bovet, P., 1932	X								

REVIEW OF RESEARCH STUDIES
REASONS FOR EXCLUSION FROM THIS VOLUME

	No Control for Socioeconomic Status	Inadequate Sample Size/Improper Sampling Techniques/Excessive Attrition Rate	No Baseline or Comparison Data/ No Control Group/ Non-Relevant Comparison	No Control for Initial Language Dominance	Significant Differences in Teacher Qualifications	Insufficient Statistical Information/ Improper Statistical Application	Research Review/ No Data Presented	Non-Target Population	Unavailable for Review
Bruck, M., Lambert, W. and Tucker, G., 1974							X		
Bruck, M., Lambert, W. and Tucker, G., 1975							X		
Bruck, M., Lambert, W. and Tucker, G. in press							X		
Bruck, M., Tucker, G. and Jakimik, J., 1973							X		
Burns. D., 1968		X							
Campeau, P., Roberts, A., Bowers, J., Austin, M. and Roberts, S., 1975						X			
Carringer, D., 1972				X					
Carringer, D., 1974				X					
Carrow, M., 1955				X					
Carrow, M., 1957	X								
Cervenka, E., 1967				X					
Chang, W., 1971	X								
Chapa, R., 1975					X				
Chen, M., 1964	X								
Cline, Jr., M., 1961				X					
Cohen, A., 1974							X		

REVIEW OF RESEARCH STUDIES
REASONS FOR EXCLUSION FROM THIS VOLUME

	No Control for Socioeconomic Status	Inadequate Sample Size/Improper Sampling Techniques/Excessive Attrition Rate	No Baseline or Comparison Data/ No Control Group/ Non-Relevant Comparison	No Control for Initial Language Dominance	Significant Differences in Teacher Qualifications	Insufficient Statistical Information/ Improper Statistical Application	Research Review/ No Data Presented	Non-Target Population	Unavailable for Review
Cohen, A., 1974							X		
Cohen, A., 1975							X		
Cohen, A., 1975							X		
Cohen, A., 1976							X		
Cohen, A., 1976		X							
Cohen, A., and Laosa, L., 1976						X	X		
Cohen, A., and Swain, M., 1976							X		
Covey, D., 1973			X						
Cummins, J., 1975									X
Cummins, J. and Gulutsan, M., 1974									X
Cummins, J. and Gulutsan, M., 1974									X
Cummins, J. and Gulutsan, M., 1974									X
Darcy, N., 1946						X			
Davis, F., 1967				X					
Del Buono, X., 1971			X						
Diebold, A., 1968						X			
Durfey, C., 1971									X

REVIEW OF RESEARCH STUDIES
REASONS FOR EXCLUSION FROM THIS VOLUME

	No Control for Socioeconomic Status	Inadequate Sample Size/Improper Sampling Techniques/Excessive Attrition Rate	No Baseline or Comparison Data/ No Control Group/ Non-Relevant Comparison	No Control for Initial Language Dominance	Significant Differences in Teacher Qualifications	Insufficient Statistical Information/ Improper Statistical Application	Research Review/ No Data Presented	Non-Target Population	Unavailable for Review
Edwards, J., 1974									X
Eichorn, D. and Jones, H., 1952	X								
Engle, P., 1975						X			
Fantini, A., 1974		X							
Fife, R. and Manuel, H., 1951	X								
Finocchiaro, M., 1966			X						
Fishman, J., 1965						X			
Fishman, J., et al, 1969						X			
Frankfort, N., 1975									X
Fraser, J., 1970							X		
Frauley, R., 1972									X
Gaines, C., 1976					X				
Gardiner, J., 1973									X
Genesee, F., Sheiner, E., Tucker, G., and Lambert, W.							X		
Giroux, U. and Ellis, D., 1968									X
Gudschinsky, S., 1971	X								
Herbert, C., 1971	X								

REVIEW OF RESEARCH STUDIES
REASONS FOR EXCLUSION FROM THIS VOLUME

	No Control for Socioeconomic Status	Inadequate Sample Size/Improper Sampling Techniques/Excessive Attrition Rate	No Baseline or Comparison Data/ No Control Group/ Non-Relevant Comparison	No Control for Initial Language Dominance	Significant Differences in Teacher Qualifications	Insufficient Statistical Information/ Improper Statistical Application	Research Review/ No Data Presented	Non-Target Population	Unavailable for Review
Herr, S., 1946			X						
Hocker, P., 1973								X	
Holick, R., 1975								X	
Hord, L., 1976								X	
Ianoco-Worrall, A., 1972							X		
Inclan, R., 1971								X	
Jacobs, J., and Pierce, M., 1966	X								
Jensen, J., 1962						X			
John, V., 1970						X			
Johnson, B., 1962	X								
Johnson, G., 1953	X								
Jones, W., 1951	X								
Jones, W., 1953	X								
Jones, W., 1960	X								
Junge, B., 1972		X							
Keith, M., 1970		X							
King, F., 1976			X						
Kittell, J., 1963			X						

REVIEW OF RESEARCH STUDIES
REASONS FOR EXCLUSION FROM THIS VOLUME

	No Control for Socioeconomic Status	Inadequate Sample Size/Improper Sampling Techniques/Excessive Attrition Rate	No Baseline or Comparison Data/ No Control Group/ Non-Relevant Comparison	No Control for Initial Language Dominance	Significant Differences in Teacher Qualifications	Insufficient Statistical Information/ Improper Statistical Application	Research Review/ No Data Presented	Non-Target Population	Unavailable for Review
Knapp, R., 1960	X								
Kosinski, L., 1963									X
Ladefoged, P., 1971					X				
Lambert, W. and Anisfeld, E., 1969							X		
Lambert, W., Just, M. and Segalowitz, N., 1969								X	
Lambert, W. and Macnamara, J., 1969								X	
Lambert, W., and Tucker, G., 1973							X		
Lambert, W., and Tucker, G., 1972								X	
Legarreta-Marcaida, D., 1975									X
Levinson, B., 1959				X					
Levy, B., 1972				X					
Lewis, D., 1959	X								
Liedke, W., and Nelson, L., 1968									X
Lopez, M., 1972									X
Loretan, J., and others, 1964				X			X		

REVIEW OF RESEARCH STUDIES
REASONS FOR EXCLUSION FROM THIS VOLUME

	No Control for Socioeconomic Status	Inadequate Sample Size/Improper Sampling Techniques/Excessive Attrition Rate	No Baseline or Comparison Data/ No Control Group/ Non-Relevant Comparison	No Control for Initial Language Dominance	Significant Differences in Teacher Qualifications	Insufficient Statistical Information/ Improper Statistical Application	Research Review/ No Data Presented	Non-Target Population	Unavailable for Review
Lugo, J., 1970				X					
Luhman, R., 1974						X			
Mackey, W., 1971				X					
Macnamara, J., 1966								X	
Macnamara, J., 1967						X			
Macnamara, J., 1967							X		
Malherbe, E., 1946							X		
Mallory, G., 1971						X			
McClinton, J., 1972								X	
McConkey, W., 1951	X								
McKay, M., 1975		X							
Merino, B., 1976								X	
Morgan, E., 1957	X								
Morgan, J., 1971								X	
Morris, R., 1974			X						
Nagy, L., 1972				X					
Nasr, A., 1973								X	
Nixon, B., 1971								X	
Olesini, J., 1971				X					
Palmer, M., 1971	X								

REVIEW OF RESEARCH STUDIES
REASONS FOR EXCLUSION FROM THIS VOLUME

	No Control for Socioeconomic Status	Inadequate Sample Size/Improper Sampling Techniques/Excessive Attrition Rate	No Baseline or Comparison Data/ No Control Group/ Non-Relevant Comparison	No Control for Initial Language Dominance	Significant Differences in Teacher Qualifications	Insufficient Statistical Information/ Improper Statistical Application	Research Review/ No Data Presented	Non-Target Population	Unavailable for Review
Perinpanayagam, G., 1973						X			
Pomerantz, N., 1970			X						
Pozzi-Escot, I., 1972		X							
Ramirez, A., 1974								X	
Rameriz, A. and Politzer, R., 1975				X					
Revil, J., et al, 1967								X	
Richardson, M., 1968								X	
Rivera, C., 1973			X						
Rodrigues, R., 1974			X						
Rogers, S., 1973								X	
Rojas, P., 1966								X	
Schutzengel, T., 1974								X	
Schwartzberg, H., 1963								X	
Shawley, N., 1975	X								
Skoczylas, R., 1972								X	
Swain, M., 1974							X		
Swain, M., 1975							X		
Talley, K., 1965								X	

REVIEW OF RESEARCH STUDIES
REASONS FOR EXCLUSION FROM THIS VOLUME

	No Control for Socioeconomic Status	Inadequate Sample Size/Improper Sampling Technique/Excessive Attrition Rate	No Baseline or Comparison Data/ No Control Group/ Non-Relevant Comparison	No Control for Initial Language Dominance	Significant Differences in Teacher Qualifications	Insufficient Statistical Information/ Improper Statistical Application	Research Review/ No Data Presented	Non-Target Population	Unavailable for Review
Tucker, G., 1970				X					
Vasquez, L., 1969		X							
Velasquez, G., 1974	X								
Vloutidis, N., 1972	X								
Walden, T., 1973			X						
Walters-Mikawa, T., 1974		X							
Weffer, R., 1972								X	
Zirkel, P., 1972					X				

SECTION 4

PROJECT EVALUATIONS EXCLUDED

REVIEW OF PROJECT EVALUATIONS
REASONS FOR EXCLUSION FROM THIS VOLUME

PROJECT	No Control for Socioeconomic Status	Inadequate Sample Size/Improper Sampling Techniques/Excessive Attrition Rate	No Baseline or Comparison Data/ No Control Group/ Non-Relevant Comparison	No Control for Initial Language Dominance	Significant Differences in Teacher Qualifications/Confounding Variables	Insufficient Statistical Information/ Improper Statistical Application	Methodologically Unsound/ AIR Review (1975)	Review Declined	Unavailable for Review
Alaska									
Anchorage Bilingual Program							X		
Alaska Native Education Board		X							
Primary Eskimo Project, Bethel, Alaska, 1970		X							
Yuk Dialect Instruction Program								X	
Arizona									
Ganado Bilingual Program								X	
Nogales Elementary Bilingual Project								X	
Phoenix Union High School District Bilingual Program						X			
Phoenix - Roosevelt District 66 Bilingual Education Program							X		
Rock Point Bilingual Education Project						X			
Rough Rock Bilingual Education Program							X		
San Carlos Bilingual Program							X		
Tucson Bilingual Bicultural Project							X		

REVIEW OF PROJECT EVALUATIONS
REASONS FOR EXCLUSION FROM THIS VOLUME

California	No Control for Socioeconomic Status	Inadequate Sample Size/Improper Sampling Techniques/Excessive Attrition Rate	No Baseline or Comparison Data/ No Control Group/ Non-Relevant Comparison	No Control for Initial Language Dominance	Significant Differences in Teacher Qualifications/Confounding Variables	Insufficient Statistical Information/ Improper Statistical Application	Methodologically Unsound/ AIR Review (1975)	Review Declined	Unavailable for Review
Auburn Upper Valley Intercultural Project						X			
Brentwood Project Amigos						X			
Calexico Intercultural Design						X			
Cerritos Title VII Portuguese Bilingual Program						X			
Chula Vista Project Frontier						X			
Compton Title VII Bilingual/Bicultural Project						X			
Crescent City Bilingual Education Program							X		
Cucamonga Title VII Bilingual Bicultural Education						X			
Culver City Spanish Immersion Program							X		
El Monte Bilingual/ Bicultural Education						X			
Escondido Bilingual-Bicultural Education						X			
Eureka Northern Indian California Education Project							X		

REVIEW OF PROJECT EVALUATIONS
REASONS FOR EXCLUSION FROM THIS VOLUME

California - continued	No Control for Socioeconomic Status	Inadequate Sample Size/Improper Sampling Techniques/Excessive Attrition Rate	No Baseline or Comparison Data/ No Control Group/ Non-Relevant Comparison	No Control for Initial Language Dominance	Significant Differences in Teacher Qualifications/Confounding Variables	Insufficient Statistical Information/ Improper Statistical Application	Methodologically Unsound/ AIR Review (1975)	Review Declined	Unavailable for Review
Fountain Valley Bilingual Early Childhood Project						X			
Gilroy Title VII Bilingual Program						X			
Gonzales ESL/Bilingual Project							X		
Happy Camp Bilingual Education Program							X		
Hayward Bilingual-Bicultural Project						X			
Klamath-Trinity Joint Unified School District Indian Program								X	
La Puente Project BUENO						X			
Los Angeles Bilingual Schools Program							X		
Los Angeles Castelar Bilingual Education Program							X		
Los Nietos Bilingual Bicultural Project							X		
McKinleyville American Indian Early Childhhod Education-SB 1258							X		
Montebello Bilingual Education Program							X		

REVIEW OF PROJECT EVALUATIONS
REASONS FOR EXCLUSION FROM THIS VOLUME

	No Control for Socioeconomic Status	Inadequate Sample Size/Improper Sampling Techniques/Excessive Attrition Rate	No Baseline or Comparison Data/ No Control Group/ Non-Relevant Comparison	No Control for Initial Language Dominance	Significant Differences in Teacher Qualifications/Confounding Variables	Insufficient Statistical Information/ Improper Statistical Application	Methodologically Unsound/ AIR Review (1975)	Review Declined	Unavailable for Review
California - continued									
Mountain View Bilingual Education Program							X		
Orange Bilingual/ Bicultural Project						X			
Pasadena Bilingual Multicultural Program						X			
Pico Rivera Bilingual Bicultural Education Para Los Estudiantes de El Rancho							X		
Pomona Bilingual/ Bicultural Project						X			
Porterville - Cooperative Effort in Successful Learning Experience- State 1258							X		
Porterville - Cooperative Effort in Successful Learning Experience- State 2284							X		
Porterville - Cooperative Effort in Successful Learning Experience - Title VII							X		
Riverside Project UNIDOS						X			
Rowland Heights Bilingual/Bicultural Education Program							X		

REVIEW OF PROJECT EVALUATIONS
REASONS FOR EXCLUSION FROM THIS VOLUME

	No Control for Socioeconomic Status	Inadequate Sample Size/Improper Sampling Techniques/Excessive Attrition Rate	No Baseline or Comparison Data/ No Control Group/ Non-Relevant Comparison	No Control for Initial Language Dominance	Significant Differences in Teacher Qualifications/Confounding Variables	Insufficient Statistical Information/ Improper Statistical Application	Methodologically Unsound/ AIR Review (1975)	Review Declined	Unavailable for Review
California - continued									
Sacramento Early Childhood Bilingual Education Program						X			
San Bernardino County Bilingual-Bicultural Exchange Project (BICEP)						X			
San Francisco Chinese Bilingual Pilot Program						X			
San Francisco Chinese Bilingual Project						X			
San Francisco Project to Advance Cultural Opportunities (PACO)						X			
San Ysidro Media Research and Evaluation Center							X		
Santa Ana ESAA Bilingual Program							X		
Santa Barbara County Bilingual Project						X			
Santa Clara - Alum Rock Unified School District Bilingual Education Project						X			
Santa Clara County - Spanish Dame School Bilingual Project						X			

REVIEW OF PROJECT EVALUATIONS
REASONS FOR EXCLUSION FROM THIS VOLUME

	No Control for Socioeconomic Status	Inadequate Sample Size/Improper Sampling Techniques/Excessive Attrition Rate	No Baseline or Comparison Data/ No Control Group/ Non-Relevant Comparison	No Control for Initial Language Dominance	Significant Differences in Teacher Qualifications/Confounding Variables	Insufficient Statistical Information/ Improper Statistical Application	Methodologically Unsound/ AIR Review (1975)	Review Declined	Unavailable for Review
California - continued									
Stockton - A Demonstration Bilingual-Bicultural Education Project								X	
Ukiah Bilingual/ Bicultural Project									X
Union City Bilingual Bicultural Education Program									X
Visalia - Allensworth Elementary School Bilingual Program						X			
Colorado									
Alamosa Bilingual Bicultural Program						X			
Denver Bilingual Education Program								X	
Johnstown Weld BOCES Bilingual Project						X			
La Junta Project Juntos						X			
San Luis Valley, 1973-74					X				
San Luis Valley, 1974-75					X				
Connecticut									
Bridgeport Primary Bilingual Education Program						X			

REVIEW OF PROJECT EVALUATIONS
REASONS FOR EXCLUSION FROM THIS VOLUME

	No Control for Socioeconomic Status	Inadequate Sample Size/Improper Sampling Techniques/Excessive Attrition Rate	No Baseline or Comparison Data/ No Control Group/ Non-Relevant Comparison	No Control for Initial Language Dominance	Significant Differences in Teacher Qualifications/Confounding Variables	Insufficient Statistical Information/ Improper Statistical Application	Methodologically Unsound/ AIR Review (1975)	Review Declined	Unavailable for Review
Connecticut - continued									
Hartford Public Schools, Title VII ESEA			X						
New Haven Bilingual Program									X
Delaware									
Wilmington Bilingual Education Program							X		
Florida									
Dade County ESAA - Bilingual Project						X			
Palm Beach County ESAA-Bilingual Program							X		
Idaho									
Holmdale - Canyon Oahie Bilingual Education Project							X		
Illinois									
Chicago Bilingual Education Program - ESEA Title VII						X			
Chicago Title III Bilingual Program							X		
Indian									
Gary Bilingual Early Childhood Education									X

REVIEW OF PROJECT EVALUATIONS
REASONS FOR EXCLUSION FROM THIS VOLUME

	No Control for Socioeconomic Status	Inadequate Sample Size/Improper Sampling Techniques/Excessive Attrition Rate	No Baseline or Comparison Data/ No Control Group/ Non-Relevant Comparison	No Control for Initial Language Dominance	Significant Differences in Teacher Qualifications/Confounding Variables	Insufficient Statistical Information/ Improper Statistical Application	Methodologically Unsound/ AIR Review (1975)	Review Declined	Unavailable for Review
Kansas									
Wichita Bilingual Education Program							X		
Louisiana									
Lafayette Parish Bilingual Program						X			
New Iberia Parish Bilingual Program						X			
New Orleans Bilingual Education Project						X			
Opelousas, St. Landry Parish Bilingual Education Program							X		
Ville Platte ESAA, Title VII, Bilingual/Bicultural Project						X			
Maine									
Madawaska St. John Valley Bilingual Program					X				
Massachusetts									
Boston Bilingual Curriculum Project						X			
Evaluation of the Chelsea Title VII Bilingual Program					X				
Fall River Public Schools Bilingual Program						X			

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	No Control for Socioeconomic Status	Inadequate Sample Size/Improper Sampling Techniques/Excessive Attrition Rate	No Baseline or Comparison Data/ No Control Group/ Non-Relevant Comparison	No Control for Initial Language Dominance	Significant Differences in Teacher Qualifications/Confounding Variables	Insuff... t Statistical Information/ Improper Statistical Application	Methodologically Unsound/ AIR Review (1975)	Review Declined	Unavailable for Review
Massachusetts - cont.									
Bilingual Program of Framingham Public Schools						X			
Lawerence Title VII Project						X			
New Bedford Title VII Bilingual Program						X			
Michigan									
Detroit's Innovative Comprehensive Program for Bilingual Students						X			
Mississippi									
Choctaw Bilingual Education Program					X				
Montana									
Box Elder Chippewa-Cree Bilingual Education Program							X		
Crow Bilingual Education Project								X	
Lodgegrass Bilingual Program							X		
New Hampshire									
Greenville Bilingual Education Program					X				

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New Jersey									
Lakewood Bilingual Education in a Consortium									X
New Brunswick Project Better Communication						X			
Newark Bilingual Education Program							X		
Union City Title VII Program							X		
New Mexico									
Albuquerque Bilingual Education Project, Title I ESEA						X			
Artesia - Southeastern New Mexico Bilingual Program						X			
Clovis - Responsive Environment Program for Spanish-American Children				X					
Clovis-Portales Bilingual Early Childhood Program						X			
Cuba Bilingual Program							X		
Espanola Bilingual Education Program						X			

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New Mexico - continued									
Gallup-McKinley County Schools Bilingual Education Program						X			
Hatch Valley ESAA Bilingual Program							X		
Las Cruces Bilingual Education Project						X			
Las Vegas ESEA Title VII Bilingual Program							X		
Mora Bilingual Program								X	
Penasco Bilingual Project							X		
Pojoaque Remedial Reading Program							X		
Ramah Bilingual Education Program								X	
Santa Fe Public Schools Title VII Bilingual Project					X				
Socorro Bilingual-Bicultural Project							X		
Taos Bilingual-Mulicultural Program						X			
Tucumcari - The Bilingual Program Title I ESEA						X			

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New Mexico - continued									
West Las Begas Armijo Bilingual Bicultural Program									X
New York									
Brooklyn Bilingual Program Title VII School District 13						X			
Bronx Title VII Community School District No. IV Bilingual Mini-School.					X				
Bronx ESEA Title VII, Community School District 9									X
Buffalo Spanish English Developmental Program, Title I ESEA						X			
North Carolina									
Buies Creek - Harnett County Summer Migrant Education Project						X			
Ohio									
Lorrain City Bilingual Education Program						X			
Oklahoma									
Durant Choctaw Bilingaul Education Program						X			

REVIEW OF PROJECT EVALUATIONS
REASONS FOR EXCLUSION FROM THIS VOLUME

	No Control for Socioeconomic Status	Inadequate Sample Size/Improper Sampling Techniques/Excessive Attrition Rate	No Baseline or Comparison Data/ No Control Group/ Non-Relevant Comparison	No Control for Initial Language Dominance	Significant Differences in Teacher Qualifications/Confounding Variables	Insufficient Statistical Information/ Improper Statistical Application	Methodologically Unsound/ AIR Review (1975)	Review Declined	Unavailable for Review
Oklahoma - continued									
Greasy Bilingual Education Program							X		
Stillwell - Adair County Bilingual Program						X			
Oregon									
Woodburn Bilingual Project						X			
Lancaster - Education Opportunity for Bilinguals							X		
Pennsylvania									
Philadelphia - Let's Be Amigos				X					
Reading - Title III Modified ESL Bilingual Program						X			
West Chester's Exemplary Program of Bilingual Education						X			
Puerto Rico									
Hato Rey Bilingual Project						X			
Rhode Island									
Providence's Plan for Bilingual Education						X			

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REASONS FOR EXCLUSION FROM THIS VOLUME

	No Control for Socioeconomic Status	Inadequate Sample Size/Improper Sampling Techniques/Excessive Attrition Rate	No Baseline or Comparison Data/ No Control Group/ Non-Relevant Comparison	No Control for Initial Language Dominance	Significant Differences in Teacher Qualifications/Confounding Variables	Insufficient Statistical Information/ Improper Statistical Application	Methodologically Unsound/ AIR Review (1975)	Review Declined	Unavailable for Review
South Dakota									
Oglala - Loneman Day School Bilingual Program							X		
Pine Ridge Dropout Prevention Program							X		
Smee Bicultural Education Program							X		
West River Lokota Program							X		
Texas									
Abernathy Project HABLA						X			
Abilene - Project ABLE								X	
Austin - Bilingual Education Program Region XIII Education Service Center						X			
Beeville Bilingual Education Program							X		
Brownsville ISD Bilingual Program						X			
Colorado City Cable								X	
Crystal City Bilingual Bicultural Education Program						X			

REVIEW OF PROJECT EVALUATIONS
REASONS FOR EXCLUSION FROM THIS VOLUME

Texas - continued	No Control for Socioeconomic Status	Inadequate Sample Size/Improper Sampling Techniques/Excessive Attrition Rate	No Baseline or Comparison Data/ No Control Group/ Non-Relevant Comparison	No Control for Initial Language Dominance	Significant Differences in Teacher Qualifications/Confounding Variables	Insufficient Statistical Information/ Improper Statistical Application	Methodologically Unsound/ AIR Review (1975)	Review Declined	Unavailable for Review
Dallas Bilingual and Multicultural Education Program						X			
Del Rio/San Felipe Bilingual Program						X			
Eagle Pass Bilingual Education Project						X			
Edinburgh Region One Bilingual Project								X	
El Paso Dual Language Program								X	
El Paso ESAA Bilingual Education Program						X			
El Paso - Yseleta Independent School District Bilingual Education Program						X			
Fort Worth - Programa en Dos Lenguas						X			
Galveston - Early Childhood Bilingual Program						X			
Harlingen Bilingual Education Program							X		
Harlandale Bilingual Education Program		X							
Kingsville Bilingual Education Program					X				

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REASONS FOR EXCLUSION FROM THIS VOLUME

	No Control for Socioeconomic Status	Inadequate Sample Size/Improper Sampling Techniques/Excessive Attrition Rate	No Baseline or Comparison Data/ No Control Group/ Non-Relevant Comparison	No Control for Initial Language Dominance	Significant Differences in Teacher Qualifications/Confounding Variables	Insufficient Statistical Information/ Improper Statistical Application	Methodologically Unsound/ AIR Review (1975)	Review Declined	Unavailable for Review
Texas - continued									
La Joya - Hacia Nuevos Horizontes									X
Laredo ISD Bilingual Education Program									X
Lubbock Bilingual Education Program							X		
McAllen Bilingual Education Program						X			
Mercedes Bilingual Education Program							X		
Midland Bilingual Education Program							X		
Mission Independent School District Bilingual Program						X			
Orange Grove Bilingual Education Program						X			
Pharr-San Juan-Alamo Bilingual Education Program							X		
Port Isabel - Project We Speak Spanish and English						X			
Robstown Bilingual Education Program							X		
San Angelo Spanish - English Experience School Program						X			

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REASONS FOR EXCLUSION FROM THIS VOLUME

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Texas - continued									
San Antonio Bilingual Bicultural Education Program						X			
San Antonio ESAA Bilingual Program						X			
San Antonio - Harlandale Independent School Dist. Bilingual Program						X			
San Antonio Middle School Program & Multi-Media Program								X	
San Diego - Un Paso Mas Adelante						X			
San Marco Bilingual Education Program						X			
Weslaco - Project Language						X			
Zapata Bilingual Bicultural Project, "Catch Up"						X			
Utah									
Blanding - Bilingual Education for Navajo								X	
Sandy - Jordon School District's Bilingual Education Program							X		
Salt Lake City Bilingual Education Program							X		

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REASONS FOR EXCLUSION FROM THIS VOLUME

	No Control for Socioeconomic Status	Inadequate Sample Size/Improper Sampling Techniques/Excessive Attrition Rate	No Baseline or Comparison Data/ No Control Group/ Non-Relevant Comparison	No Control for Initial Language Dominance	Significant Differences in Teacher Qualifications/Confounding Variables	Insufficient Statistical Information/ Improper Statistical Application	Methodologically Unsound/ AIR Review (1975)	Review Declined	Unavailable for Review
Washington									
Ephrata Title VII Bilingual Program							X		
Toppenish - Project BUILD- Bilingual Prog.						X			
Yakima Bilingual Education Program							X		
Wisconsin									
Milwaukee Public Schools Bilingual/Bicultural Education Program						X			
Milwaukee Bilingual/ Bicultural Education Program					X				
Wyoming									
Arapahoe Bilingual Program							X		

CHAPTER V

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Nogales Elementary Bilingual Project
Phoenix Union High School District Bilingual Program
Phoenix – Roosevelt District 66 Bilingual Education Program
Rock Point Bilingual Education Project
Rough Rock Bilingual Education Program
San Carlos Bilingual Program
Tucson Bilingual Bicultural Project

California

Auburn Upper Valley Intercultural Project
Brentwood Project Amigos
Calexico Intercultural Design
Cerritos Title VII Portuguese Bilingual Program
Chula Vista Project Frontier
Compton Title VII Bilingual/Bicultural Project
Crescent City Bilingual Education Program
Cucamonga Title VII Bilingual Bicultural Education
Culver City Spanish Immersion Program
El Monte Bilingual/Bicultural Education
Escondido Bilingual-Bicultural Education
Eureka Northern Indian California Education Project
Fountain Valley Bilingual Early Childhood Project
Gilroy Title VII Bilingual Program

Note: All project evaluations are 1973-74 unless designated otherwise.

California - continued
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Happy Camp Bilingual Education Program
Hayward Bilingual-Bicultural Project
Klamath-Trinity Joint Unified School District Indian Program
La Puente Project BUENO
Los Angeles Bilingual Schools Program
Los Angeles Castelar Bilingual Education Program
Los Nietos Bilingual Bicultural Project
McKinleyville American Indian Early Childhood Education – SB 1258
Montebello Bilingual Education Program
Mountain View Bilingual Education Program
Orange Bilingual/Bicultural Project
Pasadena Bilingual Multicultural Program
Pico Rivera Bilingual Bicultural Education Para Los Estudiantes de El Rancho
Pomona Bilingual/Bicultural Project
Porterville – Cooperative Effort in Successful Learning Experience – State 1258
Porterville – Cooperative Effort in Successful Learning Experience – State 2284
Porterville – Cooperative Effort in Successful Learning Experience – Title VII
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Rowland Heights Bilingual/Bicultural Education Program
Sacramento Early Childhood Bilingual Education Program
San Bernardino County Bilingual Bicultural Exchange Project (BICEP)
San Francisco Chinese Bilingual Pilot Program
San Francisco Chinese Bilingual Project
San Francisco Project to Advance Cultural Opportunities (PACO)
San Ysidro Media Research and Evaluation Center
Santa Ana ESAA Bilingual Program
Santa Barbara County Bilingual Project
Santa Clara – Alum Rock Unified School District Bilingual Education Project
Santa Clara County – Spanish Dame School Bilingual Project
Stockton – A Demonstration Bilingual-Bicultural Education Project
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Lawrence Title VII Project
New Bedford Title VII Bilingual Program

Michigan

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Mississippi

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Montana

Box Elder Chippewa-Cree Bilingual Education Program
Crow Bilingual Education Project
Lodgegrass Bilingual Program

New Hampshire

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New Jersey

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New Mexico

Albuquerque Bilingual Education Project, Title I ESEA
Artesia – Southeastern New Mexico Bilingual Program
Clovis – Responsive Environment Program for Spanish-American Children
Clovis-Portales Bilingual Early Childhood Program
Cuba Bilingual Program
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Gallup-McKinley County Schools Bilingual Education Program
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New Mexico - continued
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Pojoaque Remedial Reading Program
Ramah Bilingual Education Project
Santa Fe Public Schools Title VII Bilingual Project
Socorro Bilingual-Bicultural Project
Taos Bilingual-Multicultural Program
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New York
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North Carolina
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Ohio
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Oklahoma
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Oregon
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Pennsylvania
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Texas

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Abilene – Project ABLE
Austin – Bilingual Education Program Region XIII Education Service Center
Beeville Bilingual Education Program
Brownsville ISD Bilingual Program
Colorado City Cable
Crystal City Bilingual Bicultural Education Program
Dallas Bilingual and Multicultural Education Program
Del Rio/San Felipe Bilingual Program
Eagle Pass Bilingual Education Project
Edinburgh Region One Bilingual Project
El Paso Dual Language Program
El Paso ESAA Bilingual Education Program
El Paso – Ysleta Independent School District Bilingual Education Program
Fort Worth – Programa en Dos Lenguas
Galveston – Early Childhood Bilingual Program
Harlingen Bilingual Education Program
Harlandale Bilingual Education Program
Kingsville Bilingual Education Program
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Lubbock Bilingual Education Program
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Washington
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Wisconsin
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Wyoming
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